

Power & Free Space-Saving and Flexible

A conveyor system that allows maximum coating flexibility can now be installed even in the tightest of spaces.

In recent years, the Power & Free systems supplied by the conveyor system specialist Caldan have been called upon to meet constantly increasing demands. In most cases, customers wanted the process to leave as many possibilities open as possible. However, the problem was often that only a limited amount of space was available. Together with the plant engineering contractors, Caldan Conveyor looked for the best solutions for such cases and then implemented them to the complete satisfaction of the customers. Three examples are presented in the following.

Conveyor Technology for Fire Engines

The Austrian company Rosenbauer in Linz, a renowned manufacturer of fire engines, built a new finishing line for add-on parts and auxiliary units. The new line was equipped with a type P+F 400 conveyor system from Caldan. Since Rosenbauer wanted to make the coating process as flexible as possible, the space available in the shop floor area was already taken up by the buffer storage, the masking area and the loading and unloading points. For this reason, the plant engineers had no other alternative than to locate the drying oven on the upper level, six metres above the coating booths. An accumulation area was also built on this level. Here, the parts not only cool down but are also sorted by the workers on level 1.

The limited space available ruled out the use of vertical conveyors.



Due to the limited space available, the drying oven at the company Rosenbauer is located on level 6, above the coating booths. The racks are transported there by a lift. The picture shows the conveyor mechanism in the lift.

Instead, the racks with the parts were transported to the 6-metre level by a lift, allowing both feeding into the dryer and output from the sorting accumulation area to be performed in one cycle.

Maximum Flexibility

Brüninghaus Hydromatik, a company belonging to the Bosch Group located in Elchingen, asked the plant engineers to install a coating line for differently sized parts in a very tight area on an upper floor. The customer wanted the coating process to be absolutely flexible: after the parts had been loaded in a stop-and-go operation, pre-treatment was then to be performed in a continuous process, followed by the possibility to transport the parts to different coating booths.

The booths were equipped with hoists that not only lowered the parts but also raised them to allow the work-



At the company Brüninghaus, the crossbeams have different pivotal links for large and small parts. The picture shows the conveyors with the pivotal links in front of the spray wall.



The loading and unloading area at the company Voith.

ers to apply the coating at an ergonomically comfortable height. This called for a special construction, as the height of the ceiling also restricted the height of the hoist.

After coating, the parts move through an infrared dryer in a continuous process. As they move, the small parts have to be continuously rotated on the conveyor crossbeams. Large parts are transported through the oven without rotating.

For this reason, the crossbeams are fitted with different pivotal links for large and small parts. In addition, the crossbeams have a cardan joint that allows the parts to be transported in a very restricted space both around the horizontal radii of the pre-treatment line and up the vertical gradients. These process requirements were met by using several chain circuits.

An Individual Coating Programme for Every Part

For coating cast parts, the company Voith in Salzgitter, Germany, also installed a flexible coating line using Power & Free conveyor technology. In this case, the planners and the plant engineers designed two parallel systems. Both lines can be operated in series, both as a primer line and a top coat line. If required, the two individual lines can also operate completely independently from one another.

In the two lines themselves, various process sequences are possible. For example, when loading the parts, the operator can select whether they are to go through both lines or only one line

or can choose which drying time the part should have. For this reason, the drying ovens also have several separate lines.

Furthermore, the system is designed in such a way that if one coating line breaks down, the second can continue to operate. The system was installed and put into operation in conjunction with the general contractor, although all the mechanical components and the control system, including the software, were supplied by Caldan.

These three examples show just how flexibly one can react to various requirements by using Power & Free systems to provide the customer with a tailor-made solution. It is particularly important that the conveyor systems engineer is already integrated into the development process even at the planning stage, in order to find the ideal solution also from an economical point of view.

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